

# **DIGITAL** **PROJECTION**

HIGHlite 660 3D / Laser 3D / 8000 Series  
Lightning Series  
Mercury 930 Series  
M-Vision 930 Series  
Titan LED / 330 / 660 / 800 / 930 / Quad Series

## ► **PROTOCOL GUIDE**



## About This Document

Please follow the instructions in this guide carefully to ensure safe and long-lasting use of the projector.

Keep this guide handy for future reference.

### Note symbol used in this manual

Most pages in this document have a dedicated area for notes. The information in that area is accompanied by the following symbol:



*NOTE: this symbol indicates that there is some important information that you should read.*

### Product revision

Because we at Digital Projection continually strive to improve our products, we may change specifications and designs, and add new features without prior notice.

### Legal notice














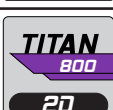
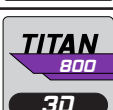
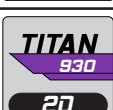
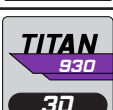
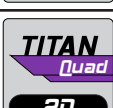
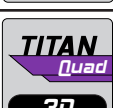
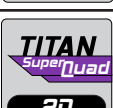


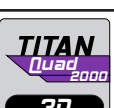
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#### Notes

## Which products are covered in this document?

This document describes the control protocol that can be used with the following projectors:

Products	Section	Badges
<ul style="list-style-type: none"> <li>HIGHlite Series: <ul style="list-style-type: none"> <li>HIGHlite 660 2D and 3D, HIGHlite 740</li> <li>HIGHlite 8000</li> <li>HIGHlite Laser 3D</li> </ul> </li> </ul>	<b>A</b> <b>A</b> <b>B</b>	   
<ul style="list-style-type: none"> <li>Lightning</li> </ul>	<b>A</b>	 
<ul style="list-style-type: none"> <li>Mercury 930</li> </ul>	<b>A</b>	
<ul style="list-style-type: none"> <li>M-Vision 930 3D</li> </ul>	<b>B</b>	
<ul style="list-style-type: none"> <li>Titan LED</li> </ul>	<b>A</b>	
<ul style="list-style-type: none"> <li>Titan Pro Series 3: <ul style="list-style-type: none"> <li>Titan 330 and Titan 660</li> </ul> </li> </ul>	<b>A</b>	   
<ul style="list-style-type: none"> <li>Titan 800 and Titan 930</li> </ul>	<b>A</b>	   
<ul style="list-style-type: none"> <li>Titan Quad Series: <ul style="list-style-type: none"> <li>Titan Quad</li> <li>Titan Super Quad / Quad 2000</li> </ul> </li> </ul>	<b>A</b> <b>A</b>	     

All protocol commands are shown in the **Command Guide** section. To see if a particular command applies to a specific projector, check the list of product badges at the beginning of the table.

### Notes



The control protocol can be used with HIGHlite 660 2D and 740 2D models only if the projector has had a manufacturer's upgrade.

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## Introduction

The projector can be controlled by using an external control system or a PC via an RS232 or LAN interface, using a terminal-emulation program.


### Network setup


1. Connect the projector to a LAN network.
2. Open the **Setup > Network** menu and edit network settings. The default IP address is **192.168.0.100** and the TCP port number is **7000**.


### Serial Port setup

- Baud rate 38,400 bps (**Section A**)  
9,600 bps (**Section B**)
- Data length 8 bits
- Stop bits one
- Parity none
- Flow control none

#### Notes

 For details on connecting the projector to an RS232 or LAN network, or changing network settings, see the user manual.

 Only one control path at a time should be used for protocol control. Attempts to send commands to both serial and network ports at the same time may result in unpredictable behavior.

 To find out which projectors are covered in **Section A** or **Section B**, see [Which products are covered in this document](#) at the beginning of this guide.

## Protocol commands

Commands are used to simulate menu operations and determine the settings of the projector, and use the following format:

- All commands consist of ASCII text strings starting with an asterisk\* and ending with an ASCII Carriage Return character↵ (code 13):  
**\*command operator <value>↵**
- The <command> string determines which setting the command will affect.
- Spaces are required before the operator and before the value.
- The <operator> string can take one of the following formats:

Command type	<operator>	Description
Set	= <value>	Makes the setting take the <value>.
Get	?	Asks what the current value is. The value is returned as an ASCII text string.
Execute		Performs an action. No operator is entered for this type of command.

## Examples

\*orientation = 3↵      sets the orientation to Rear Ceiling (for a ceiling mounted projector positioned behind the screen)

\*aspect.ratio ?↵      asks what the current aspect ratio is

\*zoom.in↵      commands the projector to zoom in


\*orientation=3↵      is an invalid instruction because of the missing spaces before the operator and the value


## Responses

If the command has been successful, the projector response begins with ACK or ack ("acknowledged"). For example, if the command is \*aspect.ratio = 1↵, the projector will return ACK aspect.ratio = 1↵ or ack aspect.ratio = 1↵, depending on the model. In either case the projector will then will change the aspect ratio accordingly.

If the command has not been acknowledged, due to a syntax error or another problem, the projector response will be NAK or nack, followed by a brief description of the problem.

## Notes

 To set the default value of a command, simply enter the command name and ↵, without an operator. For example \*orientation↵ will set the orientation to 0 (Desktop Front).

 You must wait for the complete response to a command before sending another command.

## SECTION A

Command Guides for the following projectors:



HIGHlite 660 / 740



HIGHlite 8000



Lightning



Mercury 930



Titan LED



Titan 330 & 660



Titan 800 & 930



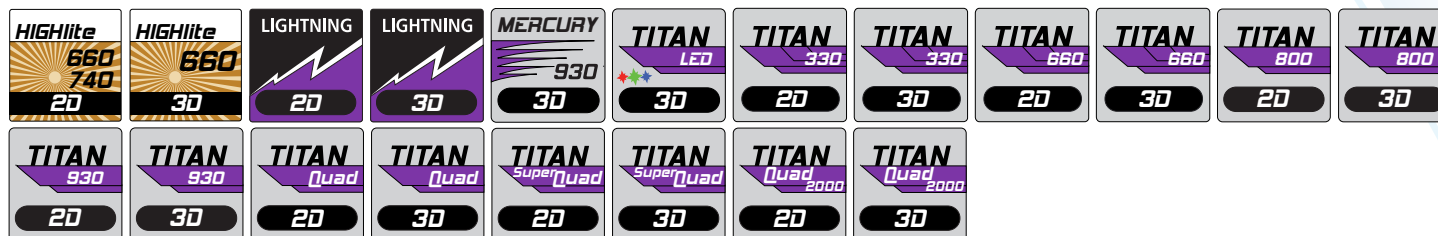
Titan Quad



Titan Super Quad & Quad 2000

## Inputs

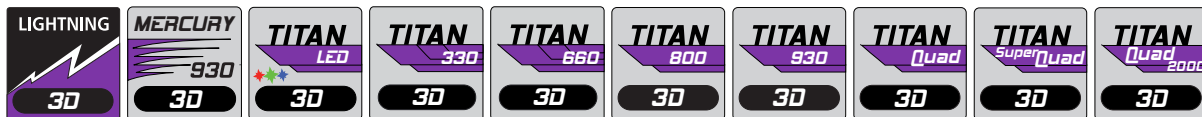
The `input` command can assign the values in the table below to the following projectors:



<command>	<operator>	<values>
input	= ?	0 = CVBS 1 1 = CVBS 2 2 = S-Video 3 = Component 4 = VGA 5 = 3G-SDI 6 = DVI 7 = HDMI 8 = Test Pattern

## Notes

The `input` command can assign additional values to the following projectors:



<command>	<operator>	<values>
input	= ?	9 = Main/DVI 10 = Sub/HDMI 11 = Dual Pipe

The `input` command can assign additional values to HIGHlite 660 3D projectors:



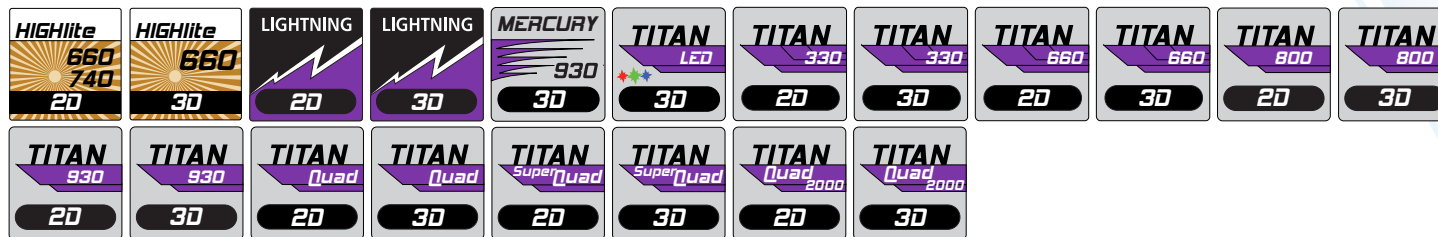
<command>	<operator>	<values>
input	= ?	9 = HDBaseT 10 = DVI 2 11 = HDMI 2 12 = HDMI 3 13 = Dual Pipe

## Notes



## Test Patterns

The `test.pattern` command can be used with the following projectors:



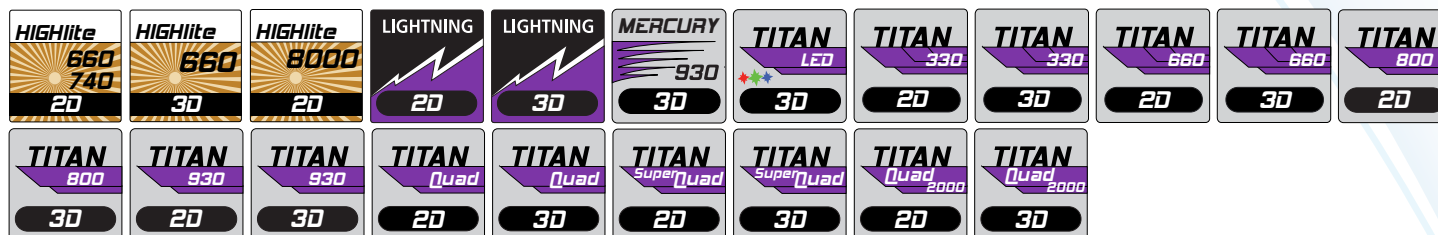
<command>	<operator>	<value>
<code>test.pattern</code>	<code>= ?</code>	0 = Grey V Bars 1 = Grey H Bars 2 = Aspect Test 3 = Alignment Grid 4 = Warp Adjust 5 = SMPTE 6 = Checkerboard 7 = White Field 8 = Black Field 9 = Screen Layout

### Notes



The `test.pattern` command is only accessible if the input command is set to 8 (Test Pattern):  
`*input = 8`

The `formatter.pattern` command can be used with the following projectors:



<command>	<operator>	<value>
<code>formatter.pattern</code>	<code>= ?</code>	0 = white 1 = black 2 = green 3 = red 4 = blue 5 = magenta 6 = cyan 7 = yellow 8 = checker 9 = align 10 = h-ramp 11 = v-ramp 12 = max lumens 13 = native white 14 = native black 15 = native green 16 = native red 17 = native blue 18 = native magenta 19 = native cyan 20 = native yellow 21 = off

### Notes



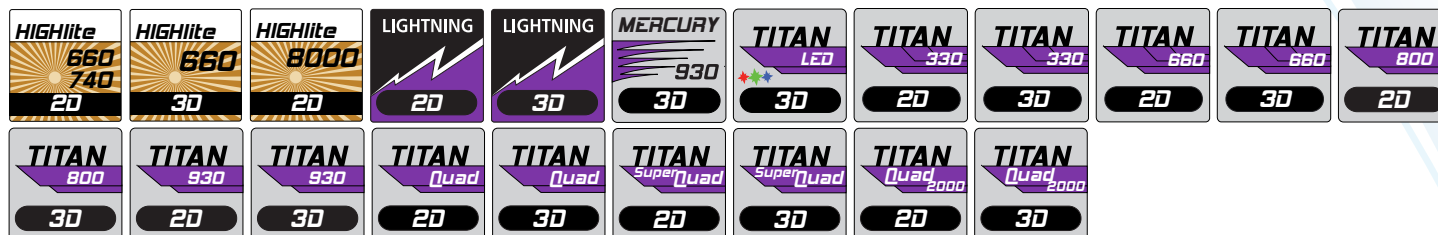
The `formatter.pattern` command is used to display formatter test patterns. The patterns are shown as soon as they are selected, regardless of which input the projector may be set to. The **off** command must be sent in order to return to normal picture:

\*`formatter.pattern = 21`

When formatter test patterns are displayed, the OSD is not available.

## Lens

The commands in the table below can be used with all projectors:



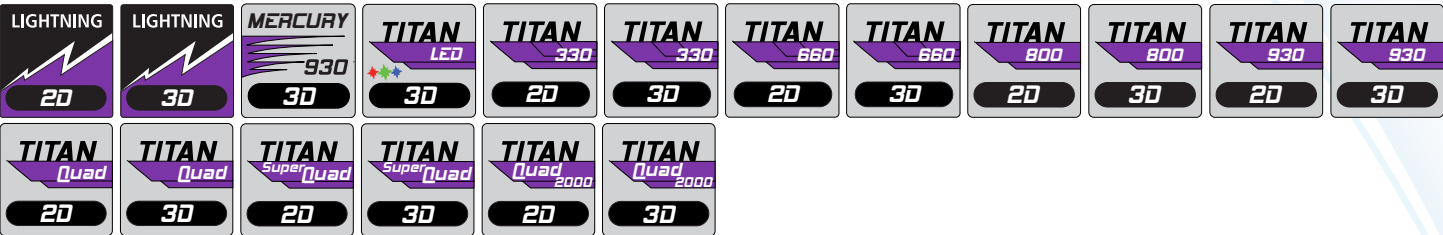
<command>	<operator>	<value>
zoom.in	(execute)	
zoom.out	(execute)	
focus.near	(execute)	
focus.far	(execute)	
lens.center	(execute)	
lens.up	=	0 - 3 (integer, movement speed: 0 = slowest, 3 = fastest)
lens.down	=	0 - 3 (integer, movement speed: 0 = slowest, 3 = fastest)
lens.left	=	0 - 3 (integer, movement speed: 0 = slowest, 3 = fastest)
lens.right	=	0 - 3 (integer, movement speed: 0 = slowest, 3 = fastest)
lens.stop	(execute)	
nudge.up	=	0 - 3 (integer, nudge time: 0 = shortest, 3 = longest)
nudge.down	=	0 - 3 (integer, nudge time: 0 = shortest, 3 = longest)
nudge.left	=	0 - 3 (integer, nudge time: 0 = shortest, 3 = longest)
nudge.right	=	0 - 3 (integer, nudge time: 0 = shortest, 3 = longest)

## Notes



When `lens.up`, `lens.down`, `lens.left` or `lens.right` is sent, the movement will continue until either a `lens.stop` command is sent or the limit is reached. Use a nudge command to produce a brief movement of the lens in the specified direction.

The commands in the table below can be used with the following projectors:

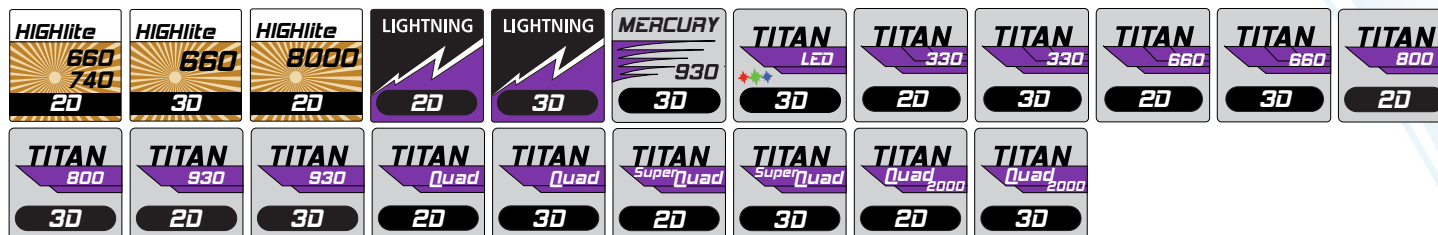


<command>	<operator>	<values>
calibrate.zoom	(execute)	
calibrate.focus	(execute)	
lensmemory.save	=	0 - 9 (integer)
lensmemory.recall	=	0 - 9 (integer)

Notes

## Image

The commands in the table below can be used with all projectors:



<command>	<operator>	<value>
brightness	= ?	-50 to 50 (integer)
contrast	= ?	-50 to 50 (integer)
gamma	= ?	0 = 1.0 1 = 1.8 2 = 2.0 3 = 2.2 4 = 2.4 5 = 2.6 6 = 2.8
freeze	= ?	On, Off

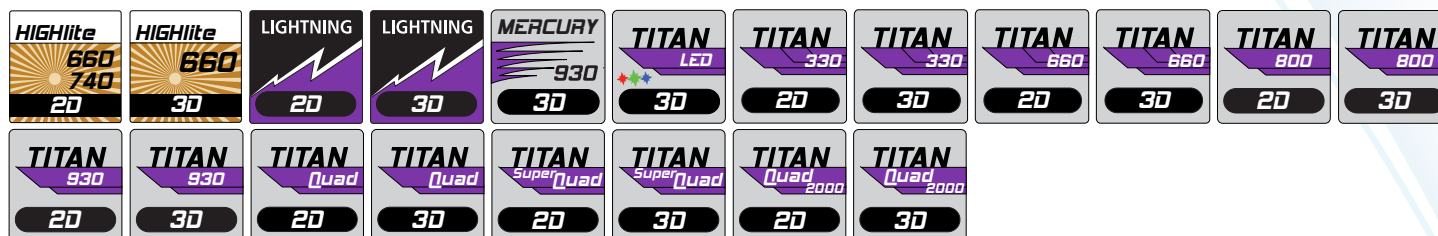
## Notes



When freeze is switched on, the image freezes and the projector will keep displaying the frozen frame until \*freeze = off is sent. The frozen image will persist even if you disconnect the source.



The commands in the table below can be used with the following projectors:



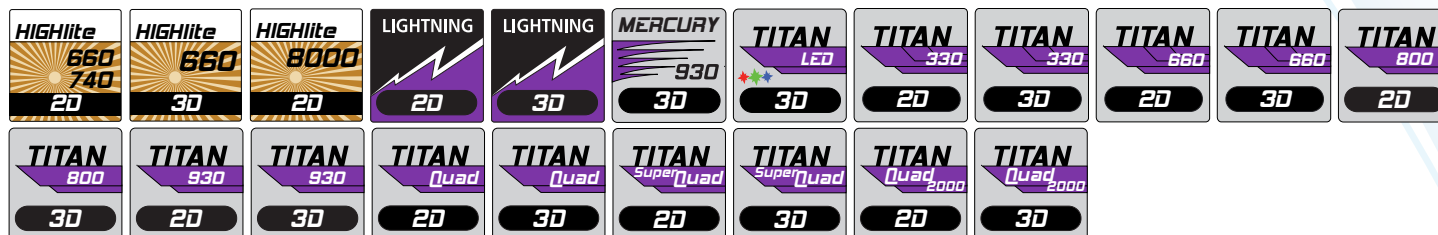
<command>	<operator>	<value>
hue	= ?	-50 to 50 (integer)
saturation	= ?	-50 to 50 (integer)
blacklevel.offset	= ?	0 = 0 IRE, 1 = 7.5 IRE
sharpness	= ?	-50 to 50 (integer)
detail	= ?	0 to 100
luma.sharpness	= ?	0 = Off 1 = Low 2 = High
chroma.sharpness	= ?	0 = Off 1 = Low 2 = High
recursive.nr	= ?	0 = Off 1 = Low 2 = Medium 3 = High
mosquito.nr	= ?	0 = Off 1 = Low 2 = Medium 3 = High
ccs	= ?	0 = Off 1 = On
vga.phase	= ?	-15 to 15 (integer)
vga.samples	= ?	0 to 1444 (integer)
vga.auto	(execute)	

### Notes

-  The `ccs` command is identical to the **Cross Color Suppression** setting in the **Image > Video Filters** menu.
-  The `vga.phase` command is identical to the **Phase** setting in the **Image > VGA Setup** menu.
-  The `vga.samples` command is identical to the **Total H Samples** setting in the **Image > VGA Setup** menu.
-  The `vga.auto` command is identical to the **Auto Setup** command in the **Image > VGA Setup** menu.


## Color


The commands in the table below can be used with all projectors:



<command>	<operator>	<values>
gamut	= ?	0 = Peak 1 = HDTV 2 = SDTV 3 = 3200K 4 = 5400K 5 = 6500K 6 = 8000K 7 = 9000K 8 = User 1 9 = User 2
mccd.data	= ?	green-x, green-y, red-x ,red-y, blue-x, blue-y, white-x, white-y
tcgd1.data tcgd2.data	= ?	green-x, green-y, red-x ,red-y, blue-x, blue-y, white-x, white-y

### Notes

 *gamut sends a selection of factory set target data or the two user tables defined by tcgd1.data and tcgd2.data.*

 *mccd.data, tcgd1.data and tcgd2.data allow for MCGD data or user TCGD data to be sent as comma separated x and y co-ordinates in the specified order. Must be preceded by leading 0, e.g. 0.663,0.332.*

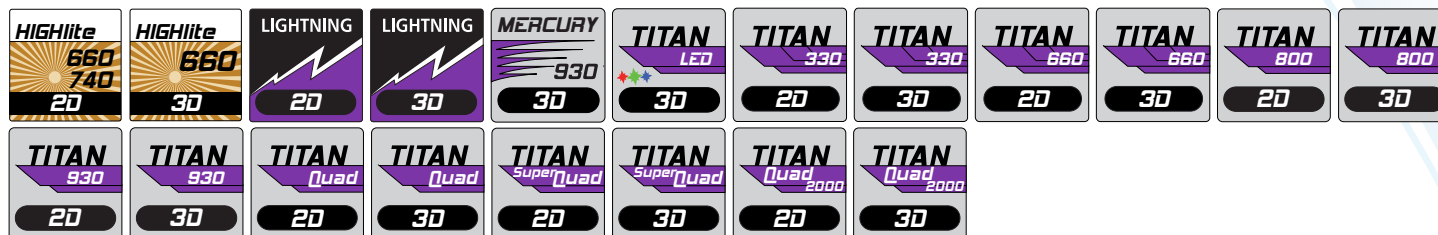
<command>	<operator>	<values>
red.lift	= ?	-50 to +50 (integer)
green.lift	= ?	-50 to +50 (integer)
blue.lift	= ?	-50 to +50 (integer)
red.gain	= ?	-50 to +50 (integer)
green.gain	= ?	-50 to +50 (integer)
blue.gain	= ?	-50 to +50 (integer)
red.dmd	= ?	On, Off
green.dmd	= ?	On, Off
blue.dmd	= ?	On, Off

**Notes**

*red.dmd enables and disables the red DMD™. Likewise, the green.dmd and blue.dmd commands control the other two DMDs.*


## Geometry


The commands in the table below can be used with the following projectors:



<command>	<operator>	<values>
aspect.ratio	= ?	0 = Source 1 = Fill & Display 2 = Fill & Crop 3 = Anamorphic 4 = TheaterScope
overscan	= ?	0 = 0% 1 = 2.5% 2 = 5% 3 = 7.5%
sizepos.enable	= ?	On, Off
sizepos.setting	= ?	Global, Modal
h.position	= ?	-50 to +50 (integer)
v.position	= ?	-50 to +50 (integer)
h.size	= ?	50 to 400 (integer)
sizepos.aspect	= ?	On, Off
v.size	= ?	50 to 400 (integer)
blanking.enable	= ?	On, Off
blanking.top	= ?	1 to 100 (integer)
blanking.bottom	= ?	1 to 100 (integer)
blanking.left	= ?	1 to 255 (integer)
blanking.right	= ?	1 to 255 (integer)

### Notes

 sizepos.enable is identical to the **Enable** setting in the **Geometry > Size & Position** menu.

 sizepos.setting is identical to the **Setting** setting in the **Geometry > Size & Position** menu.

 sizepos.aspect is identical to the **Aspect Lock** setting in the **Geometry > Size & Position** menu.

<command>	<operator>	<values>
geometry.engine	= ?	0 = Off 1 = Keystone 2 = 4 Corner 3 = Rotation 4 = Warp
h.keystone	= ?	-40 to +40 (integer)
v.keystone	= ?	-30 to +30 (integer)
pin.barrel	= ?	-20 to +20 (integer)
4corner.ulx 4corner.uly 4corner.urx 4corner.ury 4corner.llx 4corner.lly 4corner.lrx 4corner.lry	= ?	-1000 to +1000
rotation	= ?	-180 to 180 (integer)
warp.map	= ?	0 to 8 (integer)

**Notes**

`pin.barrel` sets *pincushion / barrel distortion* when `geometry.engine` is set to 1 (keystone) or 3 (rotation).



The `4corner` commands provide X and Y adjustment for each corner of the image. They are identical to the settings within the **Geometry > Cornerstone** menu.

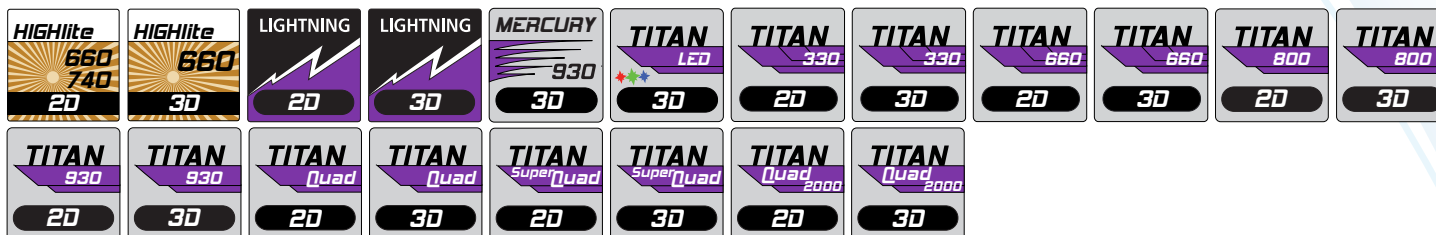


`warp.map` is identical to the **Warp Map** setting in the **Geometry** menu. Set to 0 to switch this off.



## Edge Blend

The commands in the table below can be used with the following projectors:



<command>	<operator>	<values>
array.width	= ?	1 to 4 (integer)
array.height	= ?	1 to 4 (integer)
array.hset	= ?	0 to 3 (integer)
array.vset	= ?	0 to 3 (integer)
scurve.value	= ?	10 to 25 (integer, corresponding to real values of 1.0 to 2.5)
blending	= ?	0 = Off 1 = On 2 = Alignment Pattern
segmentation	= ?	On, Off
eb.top	= ?	0 to a value of up to 720, depending on eb.bottom (integer, pixels)
eb.bottom	= ?	0 to a value of up to 720, depending on eb.top (integer, pixels)
eb.left	= ?	0 to a value of up to 1280, depending on eb.right (integer, pixels)
eb.right	= ?	0 to a value of up to 1280, depending on eb.left (integer, pixels)

### Notes

The array.width and array.height commands set the width and height of the segmented array respectively.

array.hset and array.vset set the horizontal and vertical position of the projector within the segmented array.

scurve.value affects the shape of the S-curve which is applied to gradually reduce the brightness in the overlapped regions.

eb.top and eb.bottom are identical to the **Top Blend Region** and **Bottom Blend Region** settings from the **Edge Blend > Blend Width** menu.

The maximum value for one region will equal 720 minus the pixels already applied to the other region.

eb.left and eb.right are identical to **Left Blend Region** and **Right Blend Region** from the **Edge Blend > Blend Width** menu.

The maximum value for one region will equal 1280 minus the pixels already applied to the other region.

<command>	<operator>	<values>
eb.blu.unblended	= ?	0 to 63 (integer)
eb.blu.topl	= ?	0 to 63 (integer)
eb.blu.top	= ?	0 to 63 (integer)
eb.blu.topr	= ?	0 to 63 (integer)
eb.blu.bottoml	= ?	0 to 63 (integer)
eb.blu.bottom	= ?	0 to 63 (integer)
eb.blu.bottomr	= ?	0 to 63 (integer)
eb.blu.midl	= ?	0 to 63 (integer)
eb.blu.midr	= ?	0 to 63 (integer)
eb.blu.x1	= ?	0 to 100 (integer)
eb.blu.y1	= ?	0 to 100 (integer)
eb.blu.x2	= ?	-100 to 0 (integer)
eb.blu.y2	= ?	-100 to 0 (integer)
eb.blu.x3	= ?	0 to 100 (integer)
eb.blu.y3	= ?	0 to 100 (integer)
eb.blu.x4	= ?	-100 to 0 (integer)
eb.blu.y4	= ?	-100 to 0 (integer)
eb.reset	=	1 = reset width 2 = reset offset 3 = reset width and offset 4 = reset black level uplift 5 = reset width and black level uplift 6 = reset offset and black level offset 7 = reset all

## Notes



eb.blu.unblended is identical to the **Unblended Region** setting in the **Edge Blend > Black Level Uplift** menu.



eb.blu.topl, eb.blu.top and eb.blu.topr are identical to the **Upper Left, Upper Middle and Upper Right** settings in the **Edge Blend > Black Level Uplift** menu.



eb.blu.bottoml, eb.blu.bottom and eb.blu.bottomr are identical to the **Lower Left, Lower Middle and Lower Right** settings in the **Edge Blend > Black Level Uplift** menu.



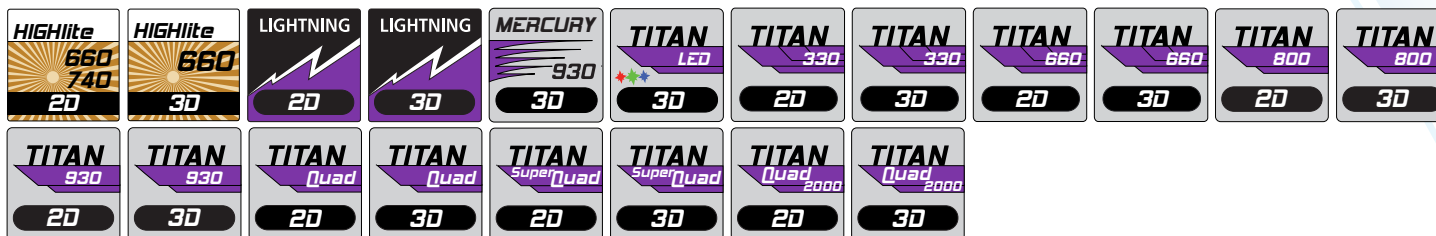
eb.blu.midl and eb.blu.midr are identical to the **Middle Left and Middle Right** settings in the **Edge Blend > Black Level Uplift** menu.



The eb.blu x and y commands are identical to the X and Y settings from the **Edge Blend > Reduce Black Level Uplift Width** menu. 1 is top left, 2 is top right, 3 is bottom left, 4 is bottom right.

# PIP

The commands in the table below can be used with the following projectors:

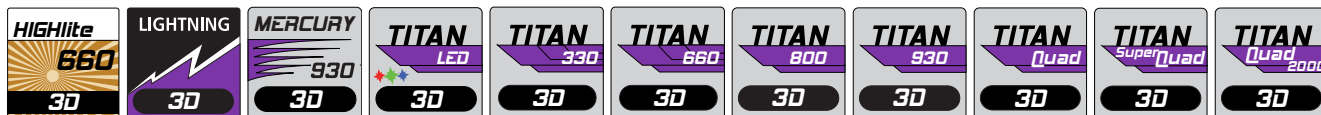


<command>	<operator>	<values>
pip.mode	= ?	0 = Off 1 = PIP 2 = PAP 3 = POP
pip.input	= ?	0 = CVBS 1 1 = CVBS 2 2 = S-Video 3 = Component 4 = VGA 5 = 3G-SDI 6 = DVI 7 = HDMI
pip.size	= ?	0 = small 1 = medium 2 = large
pip.position	= ?	0 = Top Left 1 = Top Right 2 = Bottom Left 3 = Bottom Right 4 = Custom
pip.hpos	= ?	0 to 100 (integer)
pip.vpos	= ?	0 to 100 (integer)

## Notes

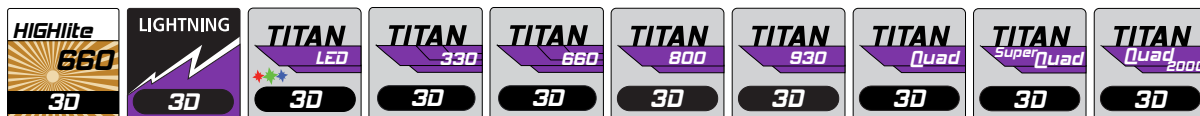
## 3D

The commands in the table below can be used the following 3D projectors:




<command>	<operator>	<values>
3d.enable	= ?	On, Off
3d.frmultiplier	= ?	1 = x1, 2 = x2, 3 = x3
3d.darktime	= ?	0 = 0 $\mu$ s 1 = 650 $\mu$ s 2 = 1300 $\mu$ s 3 = 7500 $\mu$ s
3d.syncoffset	= ?	-15 to +15 (integer)
3d.syncpolarity	= ?	pos, neg
3d.dominance	= ?	left, right

In addition, the 3d.format command can be used the following 3D projectors:



<command>	<operator>	<values>
3d.format	= ?	auto, seq, fpack, tab, sbs

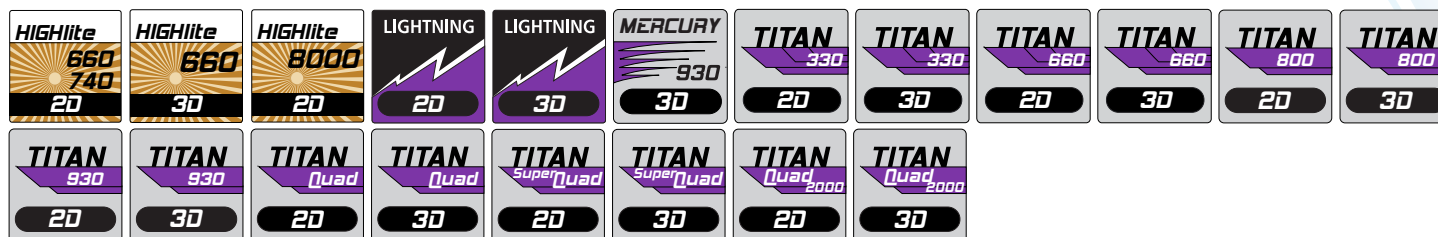
## Notes

 The values -15 to +15 represent -1500  $\mu$ s to +1500  $\mu$ s.

## Lamps

### Commands for single, dual and quad lamp projectors

The commands in the table below can be used with all single, dual and quad lamp projectors:



<command>	<operator>	<values>
lamp1.hours	?	
lamp1.strikes	?	
lamp1.serial	?	
lamp1.status	?	0 = Off 1 = Pre cooling 2 = Ignition 3 = Ignition confirm 4 = Enable communication 5 = Delay cooling 6 = Warm up eco mode 7 = Warm up 8 = Cool down no restrike 9 = Cool down ok restrike 10 = Normal 11 = Error 12 = Ignition retry 13 = Re strike delay 14 = Enable CSI 15 = Deferred shutdown 16 = Shutdown confirm 17 = Error shutdown 18 = Lamp warmup stage 1 19 = Lamp warmup stage 2

### Notes

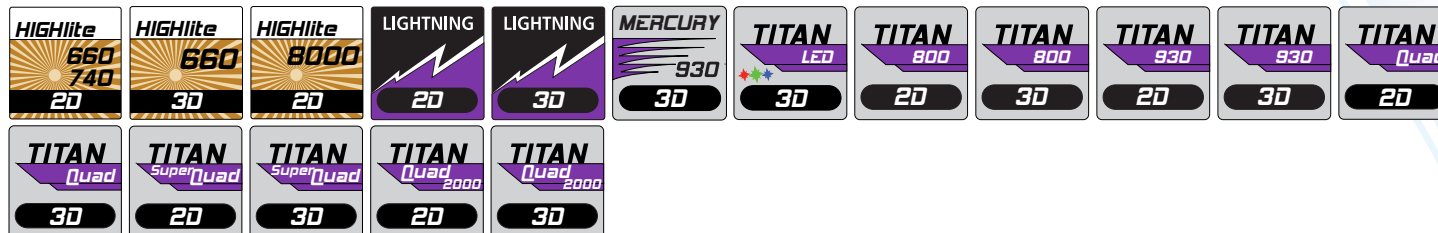


The lamp1.hours command returns the lamp hours in HH:MM format.



## Commands for single, dual and quad lamp projectors (continued)

The `lamp.power` command can be used with the following projectors:



<command>	<operator>	<values>
<code>lamp.power</code>	<code>= ?</code>	1 to 100 (integer)

### Notes

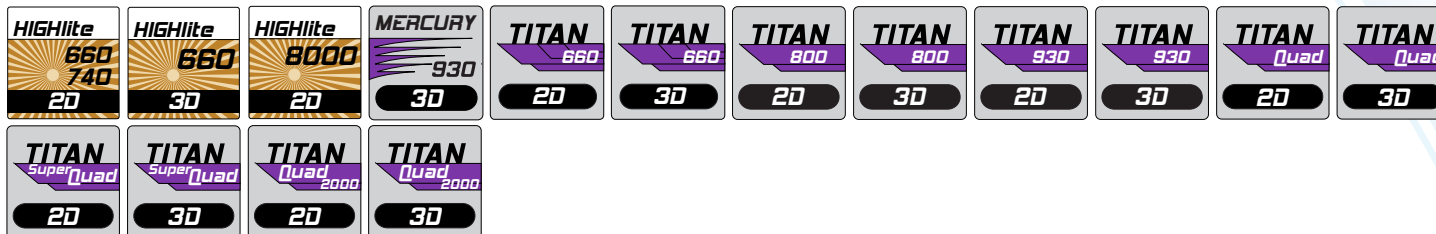


Depending on the projector model, the `lamp.power` command has a different value range as follows:

- For **HIGHlite 660 / 740** and **HIGHlite 8000**, the range is between 85 and 100. Any value lower than 85 will be interpreted as 85 by the projector.
- For **Lightning**, the range is between 60 and 100. Any value lower than 60 will be interpreted as 60 by the projector.
- For **Mercury 930**, **Titan 800**, **Titan 930**, **Titan Quad**, **Titan Super Quad** and **Titan Quad 2000**, the range is between 80 and 100. Any value lower than 80 will be interpreted as 80 by the projector.

## Commands for dual and quad lamp projectors

The commands in the table below can be used with all dual and quad lamp projectors:



<command>	<operator>	<values>	
lamp.mode	= ?	Dual lamp projectors: 0 = both lamps 1 = lamp 1 2 = lamp 2 3 = auto 1	Quad lamp projectors: 0 = all lamps 1 = auto 3 2 = auto 2 3 = auto 1 4 = lamps 1,2 and 3 5 = lamps 1,2 and 4 6 = lamps 1,3 and 4 7 = lamps 2,3 and 4 8 = lamps 1 and 2 9 = lamps 1 and 3 10 = lamps 1 and 4 11 = lamps 2 and 3 12 = lamps 2 and 4 13 = lamps 3 and 4 14 = lamp 1 15 = lamp 2 16 = lamp 3 17 = lamp 4
lamp2.hours	?		
lamp2.strikes	?		
lamp2.serial	?		

### Notes



The lamp2.hours command returns the lamp hours in HH:MM format.

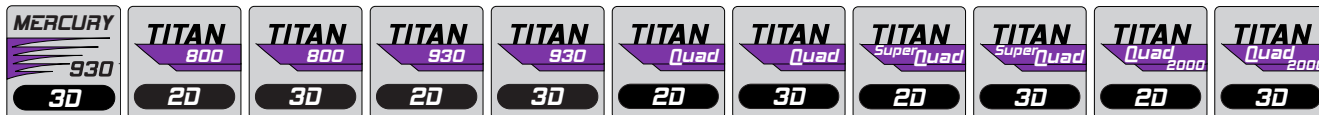
**Commands for dual and quad lamp projectors (continued)**

<command>	<operator>	<values>
lamp2.status	?	0 = Off 1 = Pre cooling 2 = Ignition 3 = Ignition confirm 4 = Enable communication 5 = Delay cooling 6 = Warm up eco mode 7 = Warm up 8 = Cool down no restrike 9 = Cool down ok restrike 10 = Normal 11 = Error 12 = Ignition retry 13 = Re strike delay 14 = Enable CSI 15 = Deferred shutdown 16 = Shutdown confirm 17 = Error shutdown 18 = Lamp warmup stage 1 19 = Lamp warmup stage 2

**Notes**

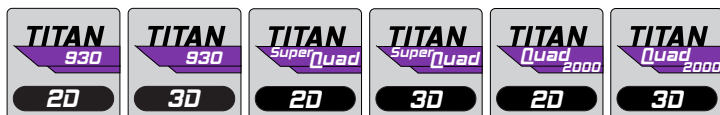
## Commands for dual and quad lamp projectors (continued)

The `compensation.mode` and `compensation` commands can be used with the following projectors:



<command>	<operator>	<values>
<code>compensation.mode</code>	= ?	auto manual
<code>compensation</code>	= ?	1 to 200 (integer)

The `conditioning` command can be used with the following projectors:

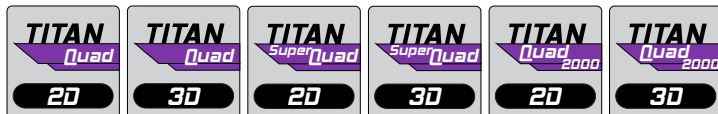


<command>	<operator>	<values>
<code>conditioning</code>	= ?	On, Off

Notes

## Commands for quad lamp projectors

The commands in the table below can be used with all quad lamp projectors:



<command>	<operator>	<values>
lamp3.hours lamp4.hours	?	
lamp3.strikes lamp4.strikes	?	
lamp3.serial lamp4.serial	?	
lamp3.status lamp4.status	?	0 = Off 1 = Pre cooling 2 = Ignition 3 = Ignition confirm 4 = Enable communication 5 = Delay cooling 6 = Warm up eco mode 7 = Warm up 8 = Cool down no restrike 9 = Cool down ok restrike 10 = Normal 11 = Error 12 = Ignition retry 13 = Re strike delay 14 = Enable CSI 15 = Deferred shutdown 16 = Shutdown confirm 17 = Error shutdown 18 = Lamp warmup stage 1 19 = Lamp warmup stage 2

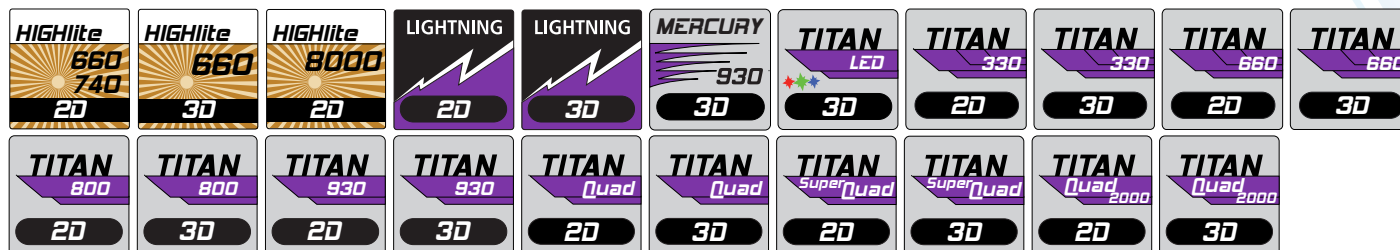
### Notes



The lamp3.hours and lamp4.hours commands return the lamp hours in HH:MM format.

## Setup

The commands in the table below can be used with all projectors:



<command>	<operator>	<values>
orientation	= ?	0 = Desktop Front 1 = Ceiling Front 2 = Desktop Rear 3 = Ceiling Rear
control.dhcp	= ?	On, Off
control.ip	= ?	A valid IP address in the following format: xxx.xxx.xxx.xxx
control.subnet	= ?	A valid subnet address in the following format: xxx.xxx.xxx.xxx
shutter	= ?	on or open off or close
ir.address	= ?	0 to 255
power	= ?	On, Off
factory.reset	(execute)	
identify	(execute)	

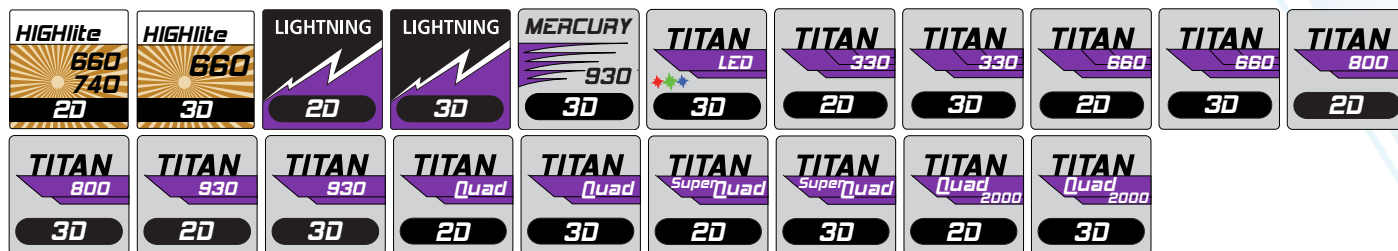
### Notes



*identify flashes the keypad lights for 10 seconds to identify the projector.*



The commands in the table below can be used with the following projectors:

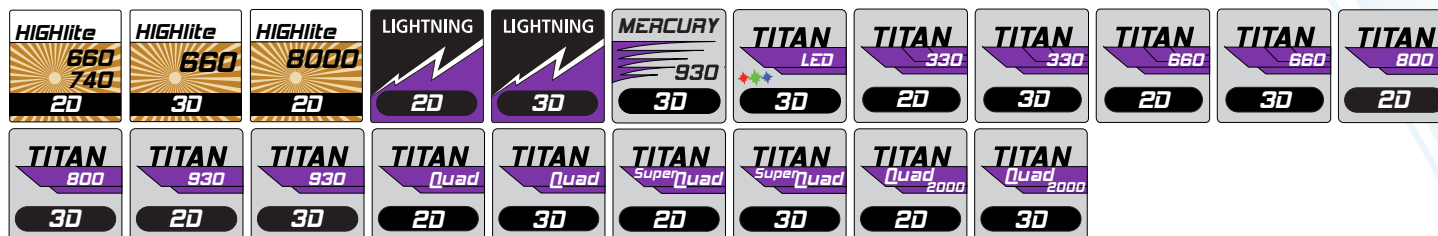


<command>	<operator>	<values>
latency	= ?	0 = Low Latency 1 = Best Video
dvi.boosteq	= ?	On, Off
digital.colspace	= ?	0 = RGB 1 = YPbPr 2 = Auto
digital.range	= ?	0 = full 1 = limited 2 = auto
dvi.port	= ?	0 = digital 1 = analog
component.colspace	= ?	0 = RGB 1 = YPbPr
component.synctype	= ?	0 = 3 wire 1 = 4 wire 2 = Auto
3gsdi.stream	= ?	0 = Stream 1 1 = Stream 2
lan.dhcp	= ?	On, Off
lan.ip	= ?	A valid IP address in the following format xxx.xxx.xxx.xxx
lan.subnet	= ?	A valid subnet address in the following format xxx.xxx.xxx.xxx
configuration	= ?	0 = PIP 1 = Edge Blend

**Notes**

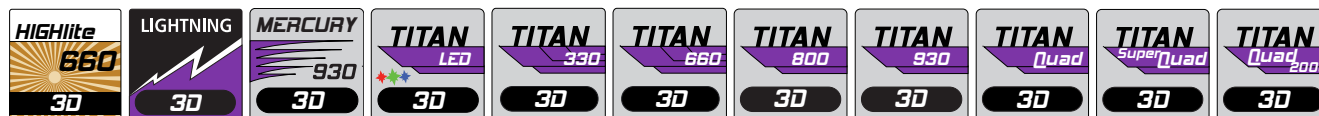
## Information

The commands in the table below can be used with all projectors:












<command>	<operator>	<values>
sw.version	?	
board.id	?	
fw.version	?	
from.version	?	
lens.version	?	
seq.version	?	
model.name	?	
serial	?	
inlet.temp	?	
dmd.temp	?	

The commands in the table below can be used with all 3D projectors:



<command>	<operator>	<values>
board.id3d	?	
fw.version3d	?	

## Notes

-  `sw.version` returns the software release version, identical to **Information > Configuration > Interface**.
-  `board.id` is identical to **Information > Configuration > Hardware**.
-  `fw.version` returns the firmware version.
-  `from.version` returns the factory ROM version.
-  `lens.version` returns the lens mount version - identical to **Information > Configuration > Lens**.
-  `seq.version` returns the formatter sequences version, identical to **Information > Configuration > Sequences**.
-  `inlet.temp` and `dmd.temp` return the temperature in °C at the air inlets and the DMD™ respectively.
-  `board.id3d` is identical to **Information > Configuration > 3D Hardware**.
-  `fw.version3d` is identical to **Information > Configuration > 3D Firmware**.

## Virtual OSD

The **LAN IP Address** of the projector can be set by using the **Network** submenu, which can be found in the **Setup** menu.

Once the LAN IP Address has been set, it is possible to control all the functions available on the OSD by using the embedded Virtual OSD.

To access the Virtual OSD, do one of the following:

- Type the URL ***http://<LAN IP Address>*** into the address bar of your browser, then press **ENTER**.
- Use the *DiscoveryTool\_V1.0.exe* application.

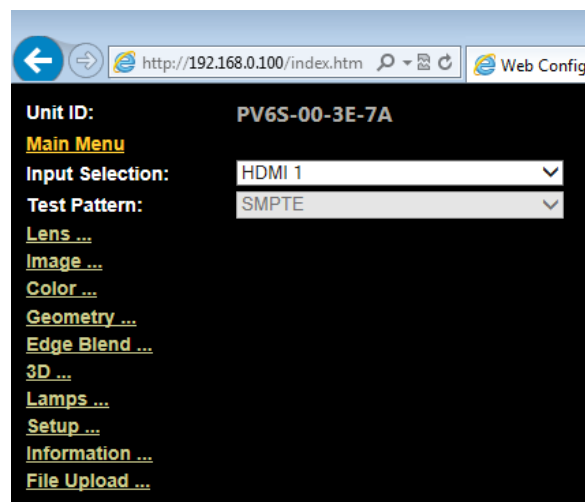
The embedded webpage shown below right should appear.

### Menu examples

The webpages mirror the OSD menus, as shown in the following examples:

- The last 3 bytes of the projector's **MAC Address** are shown in the **Unit ID**, **00-3E-7A** in the example shown here.
- The menu name is shown in orange underlined text, as in the **Main Menu** shown here.
- Drop-down lists are represented by similar drop-down lists, as in the **Input Selection** list shown here.
- Sub-menus are represented by yellow underlined links, as shown here.

PROJECTOR MODEL	
Input Selection	HDMI 1
Test Pattern	SMPTE
Lens	▶
Image	▶
Color	▶
Geometry	▶
Edge Blend	▶
3D	▶
Lamps	▶
Setup	▶
Information	▶



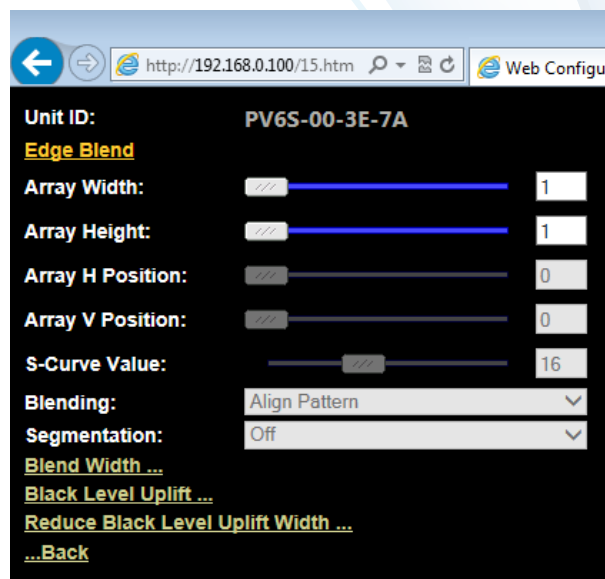
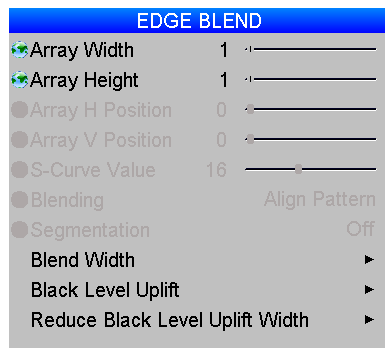
### Notes



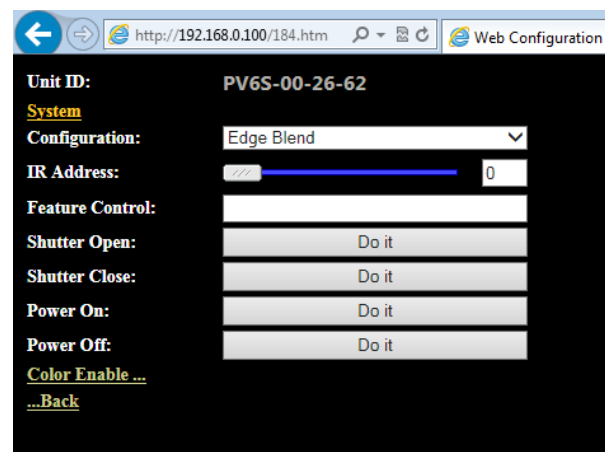
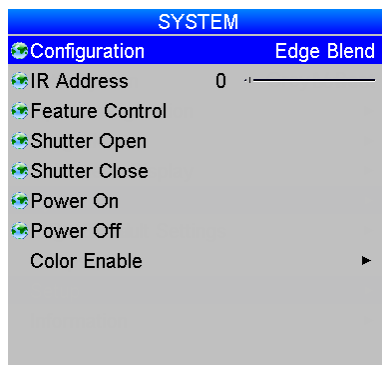
See [Using the Discovery Tool to view your network](#) later in this section.

**Examples (continued)**

- Sliders are represented by similar sliders, as in the **Array Width** and **Array Height** sliders shown here.
- Items that are not available are shown grayed-out, as shown here.
- To return from a sub-menu to the previous menu, click on the **Back** link at the bottom of the menu.



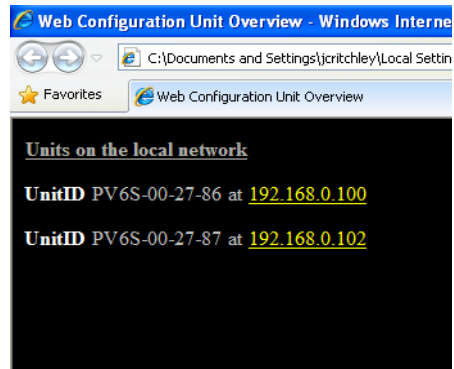
- Commands are represented by **Do it** buttons, as shown here.

**Notes**

## Using the Discovery Tool to view your network

The Discovery Tool allows you to view the IP addresses of all projectors in your network.

The tool opens the following page in your browser:



Click on a projector IP address to access the Virtual OSD for that projector.

### Notes



*The tool will only find projectors from the same subnet as the host computer. The IP addresses of these projectors will be identical up to the third octet as shown in the example.*

## SECTION B

**Command Guides** for the following projectors:



HIGHlite Laser 3D



M-Vision 930 3D



## Inputs

The `input` command assigns different values to each projector:



<command>	<operator>	<values>	
input	= ?	<b>HIGHlite Laser 3D:</b> 0 = HDMI 1 1 = HDMI 2 2 = VGA 3 = Component 1 4 = Component 2 5 = DVI 6 = HDBaseT 7 = 3GSDI	<b>M-Vision 930 3D:</b> 0 = HDMI 1 1 = HDMI 2 2 = VGA 3 = Component 1 4 = Component 2 5 = DVI 6 = HDBaseT

### Notes

## Test Patterns

The `test.pattern` command can be used with both projectors:



<command>	<operator>	<value>
test.pattern	= ?	0 = Off 1 = White 2 = Black 3 = Red 4 = Green 5 = Blue 6 = ANSI Checkboard 7 = Focus Grid 8 = V Burst 9 = H Burst 10 = Color Bar

**Notes**

## Lens

The commands in the table below can be used with both projectors:



<command>	<operator>	<value>
zoom.in	(execute)	
zoom.out	(execute)	
focus.near	(execute)	
focus.far	(execute)	
lens.center	(execute)	
lens.up	(execute)	
lens.down	(execute)	
lens.left	(execute)	
lens.right	(execute)	

### Notes

## Image

The commands in the table below can be used with both projectors:



<command>	<operator>	<value>
brightness	= ?	0 to 200 (integer)
contrast	= ?	0 to 200 (integer)
gamma	= ?	0 = 1.0 1 = 1.8 2 = 2.0 3 = 2.2 4 = 2.35 5 = 2.5
adcontrast	= ?	0 = Off 1 = On
saturation	= ?	0 to 200 (integer)
hue	= ?	0 to 200 (integer)
sharpness	= ?	0 to 200 (integer)
nr	= ?	0 to 200 (integer)
h.position	= ?	0 to 200 (integer)
v.position	= ?	0 to 200 (integer)
vga.phase	= ?	0 to 200 (integer)
tracking	= ?	0 to 200 (integer)
sync.level	= ?	0 to 200 (integer)
resync	(execute)	

### Notes



The `vga.phase` command is identical to the **Phase** setting in the **Image > Position and Phase** menu.

The commands in the table below can be used with M-Vision 930 3D:



<command>	<operator>	<value>
picture.mode	= ?	0 = Bright 1 = Presentation 2 = Video
dblack	= ?	0 = Off 1 = On

**Notes**

## Color

The commands in the table below can be used with both projectors:



<command>	<operator>	<values>
color.space	= ?	0 = Auto 1 = YPbPr 2 = YCbCr 3 = RGB PC 4 = RGB Video
color.temp	= ?	<div> <b>HIGHlite Laser 3D:</b>            0 = 5500K            1 = 6500K            2 = 7500K            3 = 9300K            4 = Native            5 = 3200K         </div> <div> <b>M-Vision 930 3D:</b>            0 = 5500K            1 = 6500K            2 = 7500K            3 = 9300K            4 = Native         </div>
color.gamut	= ?	<div> <b>HIGHlite Laser 3D:</b>            0 = Auto            1 = REC709            2 = SMPTE-C            3 = EBU            4 = Native            5 = User         </div> <div> <b>M-Vision 930 3D:</b>            0 = Auto            1 = REC709            2 = SMPTE-C            3 = EBU            4 = Native         </div>
red.lift	= ?	0 to 200 (integer)
green.lift	= ?	0 to 200 (integer)
blue.lift	= ?	0 to 200 (integer)
red.gain	= ?	0 to 200 (integer)
green.gain	= ?	0 to 200 (integer)
blue.gain	= ?	0 to 200 (integer)

### Notes



## Geometry

The commands in the table below can be used with both projectors:



<command>	<operator>	<values>
aspect.ratio	= ?	0 = 16:9 1 = TheaterScope 2 = 4:3 3 = 4:3 Narrow 4 = 16:10 5 = 5:4 6 = Source
overscan	= ?	0 = Off 1 = Crop 2 = Zoom
h.keystone	= ?	-350 to +350 (integer)
v.keystone	= ?	-200 to +200 (integer)
rotation	= ?	-20 to +20 (integer)
pin.barrel	= ?	-100 to +100 (integer)
4corner.ulx 4corner.uly 4corner.urx 4corner.ury 4corner.llx 4corner.lly 4corner.lrx 4corner.lry	= ?	-100 to +100 (integer)
warp.reset	(execute)	

### Notes

<command>	<operator>	<values>
blanking.top	= ?	0 to 360 (integer)
blanking.bottom	= ?	0 to 360 (integer)
blanking.left	= ?	0 to 534 (integer)
blanking.right	= ?	0 to 534 (integer)
blanking.reset	(execute)	

**Notes**

## Edge Blend

The commands in the table below can be used with both projectors:



<command>	<operator>	<values>
eb.stat	= ?	0 = Off 1 = On
eb.adl	= ?	0 = Off 1 = On
eb.top	= ?	0, 200 to 500
eb.bottom	= ?	0, 200 to 500
eb.left	= ?	0, 200 to 800
eb.right	= ?	0, 200 to 800
eb.blu.top	= ?	0, 8, 16, 24, 32
eb.blu.bottom	= ?	0, 8, 16, 24, 32
eb.blu.left	= ?	0, 4, 8, 12, 16, 20, 24, 28, 32
eb.blu.right	= ?	0, 4, 8, 12, 16, 20, 24, 28, 32
eb.all	= ?	0 to 32 (integer)
eb.red	= ?	0 to 32 (integer)
eb.green	= ?	0 to 32 (integer)
eb.blue	= ?	0 to 32 (integer)
eb.reset	(execute)	

### Notes

## 3D

The commands in the table below can be used with both projectors:



<command>	<operator>	<values>
3d.format	= ?	0 = Off 1 = Auto 2 = Side-By-Side (Half) 3 = Top-And-Bottom 4 = Dual-Pipe
3d.dominance	= ?	0 = Normal 1 = Reverse
3d.darktime	= ?	0 = 0.65 ms 1 = 1.3 ms 2 = 1.95 ms 3 = 2.5 ms
3d.syncoffset	= ?	0 to 60 (integer)

In addition, the 3d.dlplink command can be used with M-Vision 930 3D:



<command>	<operator>	<values>
3d.dlplink	= ?	0 = Off 1 = On

### Notes

## Lamps

The commands in the table below can be used with M-Vision 930 3D:



<command>	<operator>	<values>
lamp.mode	= ?	0 = Auto 1 1 = Dual 2 = Lamp1 3 = Lamp2
power.mode	= ?	0 = Eco 1 = Normal 2 = Power
lamp.power	= ?	0 = 77% 1 = 78% 2 = 79% 3 = 80% 4 = 82% 5 = 83% 6 = 84% 7 = 85% 8 = 86% 9 = 87% 10 = 89% 11 = 90% 12 = 91% 13 = 92% 14 = 93% 15 = 94% 16 = 95% 17 = 97% 18 = 98% 19 = 99% 20 = 100%
altitude	= ?	0 = Off 1 = On

### Notes

<command>	<operator>	<values>
lamp1.status	?	0 = Off 1 = On
lamp2.status	?	0 = Off 1 = On
lamp1.hours	?	string
lamp2.hours	?	string

**Notes**



## Laser

The commands in the table below can be used with HIGHlite Laser 3D:



<command>	<operator>	<values>
laser.mode	= ?	0 = Eco 1 = Normal 2 = Custom 3 = Quiet
laser.power	= ?	0 = 30 1 = 32.5 2 = 35 3 = 37.5 4 = 40 5 = 42.5 6 = 45 7 = 47.5 8 = 50 9 = 52.5 10 = 55 11 = 57.5 12 = 60 13 = 62.5 14 = 65 15 = 67.5 16 = 70 17 = 72.5 18 = 75 19 = 77.5 20 = 80 21 = 82.5 22 = 85 23 = 87.5 24 = 90 25 = 92.5 26 = 95 27 = 97.5 28 = 100

### Notes



*laser.power is only effective if  
laser.mode is set to custom.*

<command>	<operator>	<values>
altitude	= ?	0 = Off 1 = On
laser.status	?	0 = Off 1 = On
laser.hours	?	number

**Notes**

## Setup

The commands in the table below can be used with both projectors:



<command>	<operator>	<values>
orientation	= ?	0 = Front Tabletop 1 = Front Ceiling 2 = Rear Tabletop 3 = Rear Ceiling
auto.poweroff	= ?	0 = Off 1 = On
auto.poweron	= ?	0 = Off 1 = On
startup.logo	= ?	0 = Off 1 = On
blank.screen	= ?	0 = Splash 1 = Black 2 = Blue 3 = White
trig.1	= ?	0 = Screen 1 = 16:9 2 = Theaterscope 3 = 4:3 4 = 4:3 Narrow 5 = RS-232 6 = RS232 On 7 = RS232 Off
trig.2	= ?	0 = Screen 1 = 16:9 2 = Theaterscope 3 = 4:3 4 = 4:3 Narrow 5 = RS-232 6 = RS232 On 7 = RS232 Off

## Notes

<command>	<operator>	<values>
auto.source	= ?	0 = Off 1 = On
ir.enable	= ?	0 = Off 1 = On
lan.dhcp	= ?	0 = Off 1 = On
lan.ip	= ?	A valid IP address in the following format: xxx.xxx.xxx.xxx
lan.subnet	= ?	A valid subnet address in the following format: xxx.xxx.xxx.xxx
lan.gateway	= ?	A valid gateway address in the following format: xxx.xxx.xxx.xxx
lan.dns	= ?	A valid DNS address in the following format: xxx.xxx.xxx.xxx
lan.standby	= ?	0 = Off 1 = On
osd.menupos	= ?	0 = Top Left 1 = Top Right 2 = Bottom Left 3 = Bottom Right 4 = Center
osd.trans	= ?	0 = 0% 1 = 25% 2 = 50% 3 = 75%
osd.timer	= ?	0 = Always On 1 = 10 seconds 2 = 30 seconds 3 = 60 seconds
osd.msgbox	= ?	0 = Off 1 = On
recall.mem	= ?	0 = Preset A 1 = Preset B 2 = Preset C 3 = Preset D 4 = Default

**Notes**

<command>	<operator>	<values>
save .mem	=	0 = Preset A 1 = Preset B 2 = Preset C 3 = Preset D

**Notes**

## Information

The commands in the table below can be used with both projectors:



<command>	<operator>	<values>	
model.name	?	string	
serial	?	string	
sw.version	?	string	
act.source	?	<b>HIGHlite Laser 3D:</b> 0 = HDMI 1 1 = HDMI 2 2 = VGA 3 = Component 1 4 = Component 2 5 = DVI 6 = HDBaseT 7 = 3GSDI	<b>M-Vision 930 3D:</b> 0 = HDMI 1 1 = HDMI 2 2 = VGA 3 = Component 1 4 = Component 2 5 = DVI 6 = HDBaseT
signal	?	string	
h.refresh	?	string	
v.refresh	?	string	
pixel.clock	?	string	
factory.reset	(execute)		

## Notes



The `laser.hours` command can be used with HIGHlite Laser 3D:



<command>	<operator>	<values>
<code>laser.hours</code>	?	string

The `lamp1.hours` and `lamp2.hours` commands can be used with M-Vision 930 3D:



<command>	<operator>	<values>
<code>lamp1.hours</code>	?	string
<code>lamp2.hours</code>	?	string

**Notes**

## Miscellaneous

The commands in the table below can be used with both projectors:



<command>	<operator>	<values>
power	= ?	0 = Off 1 = On
shutter	= ?	0 = Open 1 = Close

**Notes**

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